

IN THE CLAIMS:

Replace all previous sets of claims with the following listing:

1 -6 (Canceled)

7. (Currently Amended) A sieve jigger for sorting solid material mixtures in a separating liquid bath according to density, comprising:

a rocker ~~arranged~~ mounted to pivot about a pivoting axis in the liquid bath and to carry the solid material mixtures;

a hydraulic cylinder with a single working pressure chamber pivotally connected to the rocker to lift the rocker upwardly and to brake a downward movement of the rocker;

a displacement measuring device operatively connected to a piston of the hydraulic cylinder and to generate a measuring signal;

a displacement sensor arranged to receive the measuring signal from the displacement measuring device and to generate a displacement signal;

a governor arranged to receive the displacement signal from the displacement sensor and to generate a control signal;

a motor driven hydraulic oil pump;

a hydraulic oil supply and evacuation conduit connected to the single working pressure chamber of the hydraulic cylinder;

a proportional control valve communicating with ~~located in~~ the hydraulic oil supply and evacuation conduit and arranged to receive the control signal from the governor, the proportional control valve being configured to have a first lifting position in which the motor driven hydraulic oil pump is connected to the single working pressure chamber via the proportional control valve, a second free-fall position in which the single working pressure chamber is unrestrictedly connected to a hydraulic oil sump, and a third deceleration position in which the single working pressure chamber is closed off from the hydraulic oil pump and reservoir;
a governor;

the displacement measuring device being operatively connected via the governor to the proportional control valve in order to control the upward movement and the downward movement of the rocker, in a first lifting phase, a second free-fall phase and a third deceleration phase, including controlling at least one of a lifting displacement and a lifting frequency.

8. (Currently Amended) A sieve jigger according to claim 7, wherein, to lift the rocker in the first lifting phase, the proportional control valve is arranged in the first lifting position such that hydraulic oil is fed through the hydraulic oil supply and evacuation conduit and the proportional control valve into the single working pressure chamber of the lifting and braking cylinder until before an upper dead point of the hydraulic cylinder is reached and, to lower the rocker, hydraulic oil is displaced from the working chamber of the hydraulic cylinder and is discharged through the hydraulic oil supply and evacuation conduit and proportional control valve in the free-fall position during the free-fall phase followed by a hydraulic braking of the cylinder piston during the deceleration phase with the control valve in the free-fall position or the deceleration position in accordance with the control signal from the governor before a lower dead point of the hydraulic cylinder is reached.

9. (Previously Presented) A sieve jigger according to claim 7, wherein the lifting and braking cylinder and the proportional control valve are arranged such that all three phases of lifting, free-fall and deceleration can be controlled independently.

10. (Previously Presented) A sieve jigger according to claim 7, wherein a difference between an upper and lower piston position of the lifting and braking cylinder corresponds to a lifting displacement of the rocker, wherein a lifting displacement range lies between an upper dead point limit and a lower dead point limit of the cylinder piston.

11. (Previously Presented) A sieve jigger according to claim 7, wherein the governor is connected via a signal line to the displacement measuring device of the lifting and braking cylinder and is connected via a further signal line to the proportional control valve, which is arranged in the hydraulic oil circuit between a hydraulic oil pump and the single working pressure chamber of the lifting and braking cylinder.

12. (Previously Presented) A sieve jigger according to claim 7, wherein the proportional control valve includes a controllable electronic timing generator system.

13. (Currently Amended) A sieve jigger for sorting solid material mixtures in a separating liquid bath according to density, comprising:

a pivotally-mounted rocker mounted to pivot about a horizontal pivoting axis located in the separating liquid bath, the rocker arranged to carry the solid material mixtures in the liquid bath;

a hydraulic cylinder having a piston and a single working pressure chamber, the piston of the hydraulic cylinder and being connected to the rocker at a linkage point spaced from the pivoting axis to lift the rocker upwardly and to brake a downward movement of the rocker;

a displacement measuring device operatively connected to the piston and configured to generate a measuring signal;

a displacement sensor arranged to receive the measuring signal from the displacement measuring device and to generate displacement signal;

a governor arranged to receive the displacement signal from the displacement sensor and to generate a control signal;

a motor driven hydraulic oil pump;

a hydraulic oil supply and evacuation conduit connected to the single working pressure chamber;

a proportional control valve located in the hydraulic oil supply and evacuation conduit and arranged to receive the control signal from the governor, the proportional control valve being configured to have a first lifting position in which the motor driven hydraulic oil pump is connected to the single working pressure chamber via the proportional control valve, a second free-fall position in which the single working pressure chamber is unrestrictedly connected to a hydraulic oil sump, and a third deceleration position in which the single working pressure chamber is closed off from the hydraulic oil pump and reservoir; and

a governor connected via a signal line to the displacement measuring device and connected via a further signal line to the proportional control valve;

wherein, in a first lifting phase hydraulic oil is provided through the proportional control valve while it is in the first lifting position and the hydraulic oil supply and evacuation conduit to the single working pressure chamber to pivotally lift the rocker, in a second free-fall phase hydraulic oil is permitted to flow out of the single working pressure chamber through the hydraulic oil supply and evacuation conduit and proportional control valve in the second free-fall position essentially unrestricted, and in a third deceleration phase hydraulic oil is permitted to flow out of the single working pressure cylinder through the hydraulic oil supply and

evacuation conduit ~~are~~ and the proportional control valve ~~restricted in the deceleration position~~ or free-fall position in accordance with a ~~the control~~ the control signal from the governor.

14. (Previously Presented) A sieve jigger according to claim 13, wherein, to lift the rocker, the proportional control valve is arranged such that hydraulic oil is fed through the hydraulic oil supply and evacuation conduit and the proportional control valve into the single working pressure chamber of the lifting and braking cylinder until before an upper dead point of the hydraulic cylinder is reached and, to lower the rocker, hydraulic oil is displaced from the working chamber of the hydraulic cylinder and is discharged through the hydraulic oil supply and evacuation conduit and proportional control valve in a free-fall mode followed by a hydraulic braking of the cylinder piston before a lower dead point of the hydraulic cylinder is reached.

15. (Previously Presented) A sieve jigger according to claim 13, wherein the lifting and braking cylinder and the proportional control valve are arranged to have a working cycle comprising a lifting phase of the rocker, a free-fall phase of the rocker and a braking phase of the rocker, wherein all three phases can be controlled independently.

16. (Previously Presented) A sieve jigger according to claim 13, wherein a difference between an upper and lower piston position of the lifting and braking cylinder corresponds to a lifting displacement of the rocker, wherein a lifting displacement range lies between an upper dead point limit and a lower dead point limit of the cylinder piston.

17. (Previously Presented) A sieve jigger according to claim 13, wherein the proportional control valve includes a controllable electronic timing generator system.

18. (New) A sieve jigger for sorting solid material mixtures in a separating liquid bath according to density, comprising:

a rocker mounted to pivot about a pivoting axis, the rocker arranged to carry the solid material mixtures in the liquid bath;

a hydraulic cylinder having a piston and a single working pressure chamber;

the piston of the hydraulic cylinder being connected to the rocker at a linkage point spaced from the pivoting axis to lift the rocker upwardly and to brake a downward movement of the rocker;

a displacement measuring device operatively connected to the piston and configured to generate a measuring signal;

a displacement sensor arranged to receive the measuring signal from the displacement measuring device and to generate a displacement signal;

a governor arranged to receive the displacement signal from the displacement sensor and to generate a control signal;

a motor driven hydraulic oil pump;

a hydraulic oil supply and evacuation conduit connected to the single working pressure chamber;

a proportional control valve communicating with the hydraulic oil supply and evacuation conduit and arranged to receive the control signal from the governor, the proportional control valve being configured to have a first lifting position in which the motor driven hydraulic oil pump is connected to the single working pressure chamber via the proportional control valve, a second free-fall position in which the single working pressure chamber is unrestrictedly connected to a hydraulic oil sump, and a third deceleration position in which the single working pressure chamber is closed off from the hydraulic oil pump and reservoir; and

wherein, in a first lifting phase hydraulic oil is provided through the proportional control valve while it is in the first lifting position and the hydraulic oil supply and evacuation conduit to the single working pressure chamber to pivotally lift the rocker, in a second free-fall phase hydraulic oil is permitted to flow out of the single working pressure chamber through the hydraulic oil supply and evacuation conduit and proportional control valve in the second free-fall position essentially unrestricted, and in a third deceleration phase hydraulic oil is permitted to flow out of the single working pressure cylinder through the hydraulic oil supply and evacuation conduit and the proportional control valve in the deceleration position or free-fall position in accordance with the control signal from the governor.

19. (New) A sieve jigger according to claim 18, wherein, to lift the rocker, the proportional control valve is arranged such that hydraulic oil is fed through the hydraulic oil supply and evacuation conduit and the proportional control valve into the single working pressure chamber of the lifting and braking cylinder until before an upper dead point of the hydraulic cylinder is reached and, to lower the rocker, hydraulic oil is displaced from the working chamber of the hydraulic cylinder and is discharged through the hydraulic oil supply and evacuation conduit and proportional control valve in a free-fall mode followed by a hydraulic braking of the cylinder piston before a lower dead point of the hydraulic cylinder is reached.

20. (New) A sieve jigger according to claim 18, wherein the lifting and braking cylinder and the proportional control valve are arranged to have a working cycle comprising a lifting phase of the rocker, a free-fall phase of the rocker and a braking phase of the rocker, wherein all three phases can be controlled independently.

21. (New) A sieve jigger according to claim 18, wherein a difference between an upper and lower piston position of the lifting and braking cylinder corresponds to a lifting displacement of the rocker, wherein a lifting displacement range lies between an upper dead point limit and a lower dead point limit of the cylinder piston.

22. (New) A sieve jigger according to claim 18, wherein the proportional control valve includes a controllable electronic timing generator system.